

**Preliminary Amendment**

National Stage Entry of PCT/2004/011418

Attorney Docket No.: Q86732

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1-9. (canceled).

10. (new): A radiation detector that detects spatial distribution of a first radiation and a second radiation, the radiation detector comprising:

a plurality of optical transducers that converts the first radiation to a first light having a first wavelength, and converts the second radiation to a second light having a second wavelength;

a shielding unit that is arranged between the optical transducers to shield the first radiation, the second radiation, the first light, and the second light;

a plurality of first photoelectric converters that corresponds to each of the optical transducers, and outputs a first electrical signal based on intensity of the first light; and

a plurality of second photoelectric converters that corresponds to each of the optical transducers, and outputs a second electrical signal based on intensity of the second light.

11. (new): The radiation detector according to claim 10, wherein the first radiation is  $\gamma$ -rays, and the first photoelectric converter includes a photomultiplier.

12. (new): The radiation detector according to claim 10, wherein the second radiation is X-rays, and the second photoelectric converter includes a photodiode.

**Preliminary Amendment**

National Stage Entry of PCT/2004/011418

Attorney Docket No.: Q86732

13. (new): The radiation detector according to claim 10, wherein  
the first photoelectric converters are arranged on a downstream of a direction of the first radiation and the second radiation with respect to the optical transducer, and  
the second photoelectric converters are arranged on a side of the direction of the first radiation and the second radiation with respect to the optical transducer.

14. (new): The radiation detector according to claim 13, wherein  
the optical transducer includes a scintillator array in which scintillators are arranged in one-dimension, and  
the second photoelectric converters include a photodiode array in which photodiodes are arranged in one-dimension on a side of the scintillator array in the direction of the first radiation and the second radiation so that each of the photodiodes corresponds to each of the scintillators.

15. (new): The radiation detector according to claim 14, wherein the photodiode array includes a wiring structure extended from the photodiodes to the downstream of the direction of the first radiation and the second radiation.

16. (new): The radiation detector according to claim 14, wherein the photodiode array includes a wiring structure extended from the photodiodes to the downstream of the direction of the first radiation and the second radiation, and further extended along the photodiode array.

17. (new): The radiation detector according to claim 14, wherein a plurality of the scintillator arrays and a plurality of the photodiode arrays are arranged in parallel to form a two-dimensional array.

**Preliminary Amendment**

National Stage Entry of PCT/2004/011418

Attorney Docket No.: Q86732

18. (new): The radiation detector according to claim 10, wherein  
the first photoelectric converters are arranged on the downstream of an incident direction  
of the first radiation and the second radiation with respect to the optical transducer, and  
the second photoelectric converters are formed of an element that is transparent to the  
first radiation and the second radiation, and arranged on upstream of the incident direction of the  
first radiation and the second radiation with respect to the optical transducer.